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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/639,917	08/16/2000	Joseph M. Brand	108298530US	4048

25096 7590 12/14/2004

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EXAMINER	
MITCHELL, JAMES M	
ART UNIT	**PAPER NUMBER**
2813	

DATE MAILED: 12/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/639,917	BRAND, JOSEPH M.	
	Examiner	Art Unit	
	James M. Mitchell	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *2-9,32-36,64 and 65* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *32-36* is/are allowed.

6)☒ Claim(s) *4-9,64 and 65* is/are rejected.

7)☒ Claim(s) *2 and 3* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 11-1-04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to the request for continued examination filed September 28, 2004.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 7 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Capote (U.S. 6,335,571).

Capote (Fig 19-21) discloses a method for packaging a microelectronic substrate (understood to mean a chip) comprising: disposing encapuslation material (37) in direct contact with a surface of the microelectronic substrate (10) and exposing at least a portion of the surface of the microelectronic substrate by removing a portion of the encapsulating material (Fig 20) in direct contact with the microelectronic substrate with the microelectronic substrate in operable condition after the portion of the encapsulating material is removed (MPEP 2121) wherein removing includes directing laser radiation toward the encapsulating material (Col. 10, Lines 58-60); a second surface facing opposite the first surface, the

first surface having a plurality of bond sites for electrical connections to the

microelectronic substrate includes exposing a portion of the second surface of the microelectronic substrate; wherein the encapsulating material is sequentially removed (i.e. start from top surface and then go deeper into surface resulting in the sequential removal of material; "laser drilling")

> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 64 and 65 are rejected under 35 U.S.C. 102(b) as being anticipated by Kojima et al. (U.S. 5,723,900).

Kojima discloses (cl. 64) a method for packaging a microelectronic substrate, the method comprising mounting the microelectronic substrate (13) to a dielectric support member (15a) with a first surface of the microelectronic substrate facing the dielectric support member and a second surface of the microelectronic substrate facing opposite the first surface, electrically coupling the microelectronic substrate to the dielectric support member by passing wire (16) bonds though an aperture in the support member and connecting one end of each wire bond to the support member and an opposite end of each wire bond to the microelectronic substrate (via 18), disposing an encapsulating material (14) over the second surface of the microelectronic substrate and at least a portion of the support member, and exposing at least a portion of the second surface of the microelectronic substrate (Fig 4I) by removing a portion of the encapsulating material adjacent to the second surface; (cl. 65) a first portion of the encapsulating material projects from the surface of the support member (Fig 4H; encapsulant projects upward.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Capote (U.S 5,723,900) as applied to claim 7.

Capote discloses power (watts) by its use of a laser, but does not appear to disclose how much power is used.

In any event, with respect to the laser having a power from 4 to 25 watts, it would have been obvious to one ordinary skill in the art to have a laser at 4 to 25 watts, since it has been held that discovering optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

Claims 4, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Capote (U.S 5,723,900) as applied to claim 7 and further in combination with Kojima et al. (U.S. 5,723,900)

Capote (Fig 18) appears to further show the package mounted to a board (20), but does not show a memory chip or a means to transfer heat away.

Kojima (Fig 8) teaches a memory chip (Col. 6, Line 10) and transferring heat by transmitting it directly away from the exposed portion of the surface of the

microelectronic substrate and therefore by convection; mounting the microelectronic substrate to a printed circuit board (29; Col. 5, Line 62).

It would have been obvious to one of ordinary skill in the art to incorporate a memory chip in the structure of Capote in order to provide a chip as required by Capote (abstract) and to form a heat sink on the back surface of Capote in order to improve heat radiation as taught by Kojima (Col. 5-6, Lines 66-2).

Allowable Subject Matter

Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 32-36 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: the prior art doe not disclose or make obvious utilizing a laser to remove portions of encapsulating material off of a back surface of a substrate where there are no bond sites to expose its surface including all the limitations of the independent claim.

While the prior art discloses a method of removing encapsulating material by laser as evidence by Tsuji (JP406177268) and Ito (JP403208363), it fails to disclose or make obvious using a laser to expose a surface of a microelectronic substrate; removal has been found for forming identification elements on the encapsulation layer or decapsulation for the testing and removal of chips.

Response to Arguments

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (571) 272-1931. The examiner can normally be reached on M-F 8:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead Jr. can be reached on (571) 272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jmm
December 11, 2004

CARL WHITEHEAD, JR.
SUPERVISORY PATENT EXAMINER
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